

Claims

- [c1] 1. A method for improving seek operations in an optical disc drive when utilizing a header-included land/groove optical disc, the optical disc drive having a pickup head comprising a laser for generating an optical spot on the optical disc and at least one optical sensor for generating signals according to light reflected from the optical spot, the method comprising:
- generating a first signal indicating whether a header is currently passing across the optical spot;
- generating a track count signal capable of indicating a change in position of the optical spot from a first track to a second track during a seek operation; and
- utilizing the first signal as a mask against the track count signal to substantially mask out the effects of passing headers from the track count signal.
- [c2] 2. The method of claim 1 wherein after the first signal has been used as a mask, the method further comprises utilizing the track count signal to count the number of track changes during the seek operation.
- [c3] 3. The method of claim 1 wherein after the first signal has been used as a mask, the method further comprises

utilizing the track count signal to control accelerative and braking forces applied radially to the pickup head during the seek operation.

- [c4] 4. The method of claim 1 wherein if the number of track changes in the seek operation does not exceed a predetermined threshold, the method further comprises initiating a First Delay to allow a next header to be read before initiating the first track change in the seek operation.
- [c5] 5. The method of claim 4 wherein the First Delay further allows a tracking error signal generated by the optical disc drive to substantially re-stabilize after the next header has been read before the first track change in the seek operation is initiated.
- [c6] 6. The method of claim 1 further comprising initiating a Second Delay if at least a portion of a passing header is within the optical spot when the optical spot first reaches a target track before reading or writing user data in the target track.
- [c7] 7. The method of claim 1 wherein if the optical spot is within a predetermined Danger Zone preceding a G/L Switch Line, the method further comprises initiating a Third Delay to allow the G/L Switch Line to be read be-

fore the first track change in the seek operation is initiated.

- [c8] 8. A method for improving stability in a seek operation in an optical disc drive when utilizing a header-included land/groove optical disc, the method comprising:
if the number of track changes in the seek operation does not exceed a predetermined threshold, initiating a First Delay to allow a next header to be read before the first track change in the seek operation is initiated.
- [c9] 9. The method of claim 8 wherein the First Delay further allows a tracking error signal generated by the optical disc drive to substantially re-stabilize after the next header has been read before the first track change in the seek operation is initiated.
- [c10] 10. The method of claim 8 wherein the predetermined threshold is equal to or less than the greatest number of tracks jumped in a seek operation that can be initiated and concluded between adjacent headers.
- [c11] 11. A method for improving stability a seek operation in an optical disc drive when utilizing a header-included land/groove optical disc, the optical disc drive comprising a laser for generating an optical spot on the optical disc and at least one optical sensor for generating sig-

nals according to light reflected from the optical spot, the method comprising:

initiating a Second Delay if at least a portion of a passing header is within the optical spot when the optical spot first reaches a target track before reading or writing user data in the target track.

[c12] 12. The method of claim 11 further comprising:
generating a first signal indicating whether a header is currently passing across the optical spot;
generating a track count signal capable of indicating a change in position of the optical spot from a first track to a second track of the optical disc during the seek operation; and
utilizing the first signal as a mask against the track count signal to substantially mask out the effects of passing headers from the track count signal.

[c13] 13. A method for improving stability in a seek operation in an optical disc drive when utilizing a header-included land/groove optical disc, the optical disc drive comprising a laser for generating an optical spot on the optical disc, the method comprising:
if the optical spot is within a predetermined Danger Zone preceding a G/L Switch Line, initiating a Third Delay to allow the G/L Switch Line to be read by the optical disc drive before the first track change in the seek operation

is initiated.

[c14] 14. The method of claim 13 wherein the Danger Zone comprises at least one physical sector of the optical disc immediately preceding the G/L Switch Line.

[c15] 15. An optical disc drive utilized for transferring data to and/or from a header-included land/groove optical disc, the optical disc drive comprising:
a pickup head comprising:
a laser for emitting light through a focusing lens to form an optical spot on the optical disc; and
at least one optical sensor for generating signals according to the emitted light reflected from the optical spot;
and
a memory comprising:
computer code for utilizing a first generated signal, the first generated signal indicating whether a header is currently passing across the optical spot;
computer code for utilizing a generated track count signal, the generated track count signal capable of indicating a change in position of the optical spot from a first track to a second track during a seek operation; and
computer code for utilizing the first generated signal as a mask against the generated track count signal to substantially mask out the effects of passing headers from the generated track count signal.

- [c16] 16. The optical disc drive of claim 15 wherein after the first generated signal has been used as a mask, the generated track count signal is utilized by the optical disc drive to count the number of track changes during the seek operation.
- [c17] 17. The optical disc drive of claim 15 wherein after the first signal has been used as a mask, the optical disc drive utilizes the generated track count signal to control accelerative and braking forces applied radially to the pickup head during the seek operation.
- [c18] 18. The optical disc drive of claim 15 wherein the memory further comprises a predetermined threshold that indicates a maximum number of track changes in a seek operation that can be initiated and concluded between adjacent headers on the optical disc.
- [c19] 19. The optical disc drive of claim 18 wherein the memory further comprises computer code for initiating a First Delay to allow a next header to be read before initiating the first track change in the seek operation if the number of track changes in the seek operation does not exceed the predetermined threshold.
- [c20] 20. The optical disc drive of claim 19 wherein the First Delay further allows a tracking error signal generated by

the optical disc drive to substantially re-stabilize after the next header has been read before the first track change in the seek operation is initiated.

- [c21] 21. The optical disc drive of claim 15 wherein the memory further comprises computer code for initiating a Second Delay if at least a portion of a passing header is within the optical spot when the optical spot first reaches a target track before reading or writing user data in the target track.
- [c22] 22. The optical disc drive of claim 15 wherein the memory further comprises computer code for determining if the optical spot is within a predetermined Danger Zone preceding a G/L Switch Line on the optical disc.
- [c23] 23. The optical disc drive of claim 22 wherein the memory further comprises computer code for initiating a Third Delay if it is determined that the optical spot is within the predetermined Danger Zone to allow the G/L Switch Line to be read before the first track change in the seek operation is initiated.
- [c24] 24. The optical disc drive of claim 22 wherein the predetermined Danger Zone comprises at least one physical sector of the optical disc immediately preceding the G/L Switch Line.

- [c25] 25. An optical disc drive having improved stability in seek operations when utilizing a header-included land/groove optical disc, the optical disc drive comprising: a memory comprising a predetermined threshold that indicates a maximum number of track changes in a seek operation that can be initiated and concluded between adjacent headers on the optical disc.
- [c26] 26. The optical disc drive of claim 25 wherein the memory further comprises computer code for initiating a First Delay to allow a next header to be read before initiating the first track change in the seek operation if the number of track changes in the seek operation does not exceed the predetermined threshold.
- [c27] 27. The optical disc drive of claim 26 wherein the First Delay further allows a tracking error signal generated by the optical disc drive to substantially re-stabilize after the next header has been read before the first track change in the seek operation is initiated.
- [c28] 28. The optical disc drive of claim 25 wherein the predetermined threshold is equal to or less than the greatest number of tracks jumped in a seek operation that can be initiated and concluded between adjacent headers.
- [c29] 29. An optical disc drive having improved stability in

seek operations when utilizing a header-included land/groove optical disc, the optical disc drive comprising:
a memory comprising:

computer code capable of initiating a Second Delay if at least a portion of a passing header is within the optical spot when the optical spot first reaches a target track before reading or writing user data in the target track.

- [c30] 30. The optical disc drive of claim 29 wherein the optical disc drive further comprises a laser for emitting light to form an optical spot on the optical disc and at least one optical sensor for generating signals according to the emitted light reflected from the optical spot; and wherein the memory further comprises:
computer code for utilizing a first generated signal, the first generated signal indicating whether a header is currently passing across the optical spot;
computer code for utilizing a generated track count signal, the generated track count signal capable of indicating a change in position of the optical spot from a first track to a second track during the seek operation; and
computer code for utilizing the first generated signal as a mask against the generated track count signal to substantially mask out the effects of passing headers from the generated track count signal.

[c31] 31. An optical disc drive utilized for transferring data to and/or from a header-included land/groove optical disc, the optical disc drive having a laser for emitting light to form an optical spot on the optical disc, the optical disc drive comprising:

a memory comprising computer code for determining if the optical spot is within a predetermined Danger Zone preceding a G/L Switch Line on the optical disc.

[c32] 32. The optical disc drive of claim 31 wherein the memory further comprises computer code for initiating a Third Delay if it is determined that the optical spot is within the predetermined Danger Zone, the Third Delay allowing the G/L Switch Line to be read before the first track change in the seek operation is initiated.

[c33] 33. The optical disc drive of claim 31 wherein the predetermined Danger Zone comprises at least one physical sector of the optical disc immediately preceding the G/L Switch Line.